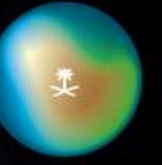




**25<sup>TH</sup>**  
**WPC ENERGY**  
**CONGRESS**



وزارة الطاقة  
MINISTRY OF ENERGY



# 25TH WPC ENERGY CONGRESS

TECHNICAL PROGRAMME

BLOCKS & FORUMS



The global energy landscape is at a critical juncture, with the need to balance growing energy demands, environmental sustainability, and energy security. This block will explore the future pathways for primary energy supply, focusing on the transitions from fossil fuels to renewable energy sources, the role of emerging technologies, and the implications for global energy markets.

## **F1 - Energy Supply and Demand Outlook: Navigating the Future**

An exploration of the latest trends, challenges, and opportunities in the energy sector, including the impact of geopolitical tensions, the transition to renewable energy, and the economic factors shaping the market. The implications of these dynamics on achieving climate goals and ensuring a sustainable energy future and topics to gain a deeper understanding of the evolving energy landscape.

## **F2 - Opportunities for Oil & Gas Supply Growth – Shales, Oil Sands, New Basins, Other Unconventionals**

As the world consumes oil and natural gas to fuel economic growth, improve standards of living, and support the development of ever-cleaner energy technologies, there remains an urgent need to replace the hydrocarbons consumed. Where do we find these new oil and natural gas resources? Which basins have remaining exploration potential? How do we tap the remaining potential in shales, oil sands, and other unconventional petroleum resources?

## **F3 - New Exploration and Production Technologies to Extend Supply**

New exploration and production technologies are revolutionising the oil and gas industry, enabling access to previously untapped resources, improving efficiency, and reducing the environmental impact of exploration and production activities. By leveraging these advancements, the industry can extend the supply of hydrocarbons while addressing environmental and sustainability concerns.

## **F4 - Natural Gas as a Transition Fuel**

Natural gas holds a pivotal role in the transition to a lower-carbon energy landscape due to its comparatively reduced carbon emissions, when compared with coal and oil. As the global focus shifts towards renewable energy, natural gas emerges as a dependable and adaptable energy resource that bolsters grid stability and energy security. Moreover, technological advancements and infrastructure development, such as liquefied natural gas (LNG) and pipeline networks, enhance the accessibility and efficiency of natural gas utilisation. This session will delve into the potential of natural gas to serve as a bridge between traditional fossil fuels and renewable energy, thereby facilitating a sustainable energy future. The exploration of opportunities to expand natural gas applications for technological purposes, including the production of renewable energy, will also be a focal point of discussion.

## **F5 - Advances in Geoscience**

Advances in geoscience are pivotal in revolutionising energy supply, improving resource management, and addressing environmental challenges. By integrating cutting-edge technologies and innovative methods, geoscientists are paving the way for a more sustainable and efficient future in energy production and resource utilization.

## **F6 - The Role of Biofuels as a Feedstock**

This session delves into the innovative use of biofuels as a feedstock in various industries, emphasising their potential to replace traditional fossil fuels and contribute to sustainable production processes. The session will explore the latest advancements in biofuel technologies, feedstock optimisation, and the role of biofuels in reducing greenhouse gas emissions, with insights into the scientific principles, engineering challenges, and economic considerations involved in the utilisation of biofuels as a versatile feedstock.

The energy sector is undergoing a transformation, driven by the global shift towards lower carbon energy, the decentralisation of energy systems, and the integration of new technologies. This block will explore the critical role of energy infrastructure in this transition, examining the challenges and opportunities in modernising and expanding the infrastructure to support a sustainable, reliable, and resilient energy future.

## **F7 – Navigating the Future: Innovations and Market Dynamics in LNG, FLNG, and CNG**

This session aims to explore the evolving landscape of natural gas, focusing on the future prospects of LNG, FLNG, and CNG technologies. As the global energy market shifts towards cleaner alternatives, natural gas is poised to play a pivotal role in the energy transition. The session will bring together discussions on the latest technological advancements, market opportunities, and challenges in the LNG, FLNG, and CNG sectors.

## **F8 – Pipelines, Storage and SPRs**

Effective management of pipelines, storage facilities, and Strategic Petroleum Reserves (SPRs) is paramount for ensuring energy security and market stability. As global energy demand exhibits fluctuations, the infrastructure required for oil transportation and storage must adapt to guarantee a reliable supply. This forum will examine advancements in pipeline technology, storage solutions, and the strategic significance of SPRs in mitigating supply disruptions. Key areas of discussion encompass enhancing pipeline safety, optimising storage capacity, and the role of SPRs in emergency response and market stabilization, thereby contributing to a resilient energy system within a dynamic global context. The geopolitical relevance of this topic is undeniable, as the diversification of pipeline routes emerges as a cornerstone of energy security for entire regions.

## **F9 - CCS Hub Facilities**

As industry and governments pursue the technology of carbon capture and storage to reduce the emission of CO<sub>2</sub> into the atmosphere, a growing number of nations and jurisdictions are establishing CCS hubs to support industrial scale deployment of these technologies. These hubs are specific geographic regions with the geological, technological, and regulatory regimes in-place to support the capture and storage of anthropogenic carbon emissions. The purpose of this session is to present case-studies, highlight challenges and opportunities, and identify pathways to accelerate CCS activities worldwide.

## **F10 - Hydrogen Transportation**

Hydrogen is an energy source to become the key for the carbon neutral. Since its utilisation and application are expanding out not only as fuel but also as a raw material, hydrogen is expected to be utilised in the wide industrial fields. For promoting the utilisation of hydrogen, construction of the hydrogen supply chain is indispensable, and in recent years the development of marine transportation technology to enable a long-distance and mass transit, various techniques about pipelines and trailers delivering hydrogen to the demand place, and technologies for storage of a large quantity of hydrogen are attracting attention. This forum is focused on the current situation of technologies and the infrastructure necessary for hydrogen transportation and future challenges.

## **F11 - Supply Chain Management**

In the context of global energy landscape reshaping and energy transition acceleration, it is important that oil and gas companies manage their supply chain smarter and greener with digital technology and artificial intelligence. Better infrastructure, optimal process and closer partnership is also essential. This forum will discuss the latest research and best practices on supply chain management, including strategic planning, infrastructure, process management, partnership, risk management and artificial intelligence.

## **F12 - Water Management in the Energy Industry: Innovations for Sustainability and Efficiency**

As the petroleum industry focuses on sustainable and efficient operations, effective water management remains a critical priority. This forum will explore the latest technologies and strategies for handling produced water, with the aim of minimising environmental impact and optimising water usage in extraction and refining processes. Key topics will include advanced water treatment, reuse, and disposal methods, as well as regulatory compliance. Industry experts will discuss innovative solutions for reducing the water footprint, presenting case studies and best practices to provide valuable insights into the current state of water management and the future advancements essential for sustainable operations.

The energy transition is driving the need for innovative energy fuels and molecules that can replace or complement traditional fossil fuels. This block will examine the various pathways for developing and integrating these new energy carriers, focusing on their technological, economic, and environmental aspects.

## **F13 - Fueling the Future: Innovations and Strategies for Tomorrow's Electricity Supply**

As the world transitions to a low-carbon future, the electricity supply system is undergoing significant changes. This session will explore the key trends, technologies, and challenges in ensuring a reliable and sustainable electricity supply. Topics will include renewable energy integration, advancements in grid technology, energy storage solutions, and the role of emerging technologies like hydrogen and CCS. The session will look at how different energy sources and technologies can work together to fuel the future of electricity.

## **F14 - Hydrogen (Green and Blue); Ammonia; Methanol**

This forum will explore the evolving landscape of hydrogen production, focusing on green (renewable) and blue (low-carbon) hydrogen technologies. It will delve into the role of ammonia and methanol as hydrogen carriers and their applications in energy storage, transportation, and industrial processes. The session will also cover the latest advancements in production methods, infrastructure development, and the integration of these fuels into existing energy systems. Participants will gain insights into the economic, environmental, and technological aspects of these key components in the transition to a low-carbon energy future.

## **F15 - Alternative Fuels - E Fuels, Biofuels and SAF**

Alternative fuels such as e-fuels, biofuels and SAF are attracting attention as a sustainable energy source for the future. Efforts to improve the production efficiency of these alternative fuels and reduce their carbon intensity will be an important part of realising a carbon-neutral society. This forum will introduce economically rational production technologies that apply innovative and existing technologies, the contribution of low-carbon fuels to achieving net zero, and the status of preparations for fuel standards and certification for practical use. It will also discuss cooperation with local communities and stakeholders, and the building of mutually beneficial relationships.

## **F16 - Pathways to Net-Zero Refining and Petrochemical Facilities**

Work towards achieving net-zero emissions at assets by discovering leading-edge technologies and processes. As the refining and petrochemical sector responds to emerging carbon policies and regulations around the world, learn how to integrate renewable energy, carbon capture and storage (CCS), and process optimisations to reduce environmental impacts. Conversations will also highlight successful case studies, opportunities and challenges to enhancing operations, and balancing both economic and environmental interests.

## **F17 - Helium, Lithium and Trace Metals Extraction**

The evolution of global energy systems toward renewable and clean energy technologies, as well as the continued electrification of many industry sectors, particularly transportation, are creating significant new demand for helium, lithium, and trace metals. This session will explore the global resource base of these elements and the current and emerging technologies to extract these resources.

## **F18 - Smart Infrastructure for the Future Energy Industry: Digitalisation and Innovation**

As the energy industry evolves to meet the demands of a sustainable future, smart infrastructure is playing a crucial role in transforming the sector. This session will explore the cutting-edge technologies and strategies that are enabling smarter, more resilient, and adaptive energy systems. It will cover the latest developments in smart grids, intelligent energy management systems, IoT applications, AI-driven analytics, and the role of big data in optimising energy infrastructure. The session will bring together experts to discuss the challenges, opportunities, and future trends in smart energy infrastructure.

This block will explore the technologies that are enabling the energy transition, from renewable energy generation and storage solutions to advancements in energy efficiency and smart grids. The event will provide insights into current trends, emerging innovations, and strategic pathways for accelerating the adoption of these technologies.

## **F19 – Research, Technology Start-ups and Funding**

Technology and innovation are the key to energy transition. Significant advancements have been achieved for conventional energies production in terms of efficiency and emission reductions. New energies such as solar, wind, hydrogen, nuclear, hydro, biomass etc. together with energy storage and complementary technologies, have boomed and are playing more and more important roles in energy transition. This forum will discuss the latest progress and achievements including research, experiments, applications, management and investment, with a particular focus on the roles of start-ups and venture capitals in projects initiation, planning and commercialisation.

## **F20 - GHG Emissions (Scope 1 & 2) Abatement (CO2, Methane) – Detection; CO2 Capture; CCUS; DAC; Carbon Products**

This forum will explore innovative approaches and technologies for the detection and abatement of Scope 1 and 2 greenhouse gas emissions, including CO2 and methane. Topics will cover advanced detection methods, CO2 capture techniques, and carbon capture, utilisation, and storage (CCUS) strategies. Additionally, the forum will delve into direct air capture (DAC) technologies and the development of carbon products. Attendees will gain insights into the latest advancements and practical applications in reducing greenhouse gas emissions.

## **F21 - Solar, Wind and Nuclear Integration**

This forum will delve into challenges and opportunities of integrating these diverse energy sources into a cohesive power supply system. It will explore the latest advancements in grid technology, storage solutions, and policy frameworks that enable seamless integration. Participants will learn about the roles of solar and wind in complementing nuclear energy, the importance of balancing supply and demand, and strategies for maximising efficiency and reliability. The session will also address the environmental impacts and regulatory considerations associated with each energy source, offering a comprehensive overview of their synergistic potential in a sustainable energy future.

## **F22 - Advancing the Circular Economy and Value of Life Cycle Analyses**

Life Cycle Analyses (LCA) are an essential step in designing more sustainable products and processes, which begin at resource extraction and reach end-of-life disposal. Experts will explore how LCAs inform sustainable decision-making and promote efficiencies to reduce waste. The panel will address innovative strategies for designing products and other benefits of transitioning to circular models with the support of LCAs.

## **F23 - The Energy Transition: The Role of Digitalisation, AI, and Cybersecurity**

Digitalisation, AI, and cybersecurity are key enablers of this transition, providing the tools and frameworks needed to manage complex energy systems, optimize operations, and protect against cyber threats. AI offers a broad scope including the creation of virtual replicas of physical assets, processes and systems, using real-time data and simulations and can help to automate complex and repetitive tasks, such as drilling and production, which improves the efficiency, quality, and consistency of operations and reduce costs. This session will explore the latest advancements in these areas and discuss how they are transforming the energy industry to meet future challenges

## **F24 - Powering Mobility: The Energy Transition and the Future of Transportation**

The energy transition is fundamentally changing the landscape of mobility, with a growing focus on reducing carbon emissions and improving energy efficiency in transportation. This session will examine the critical role of sustainable energy sources, electric vehicles, and alternative fuels in driving the future of mobility. Experts will discuss the latest technologies, infrastructure developments, and policy frameworks that are shaping a new era of transportation, where energy and mobility intersect more closely than ever before.



This block focusses on the role of leadership in driving the global energy transition towards a more sustainable, low-carbon future. It will explore how leaders across various sectors - government, industry, academia, and finance - can guide and accelerate the shift from traditional energy systems to innovative, clean energy solutions. It would address the strategies, challenges, and opportunities for effective leadership in this transformative period.

## **F25 - Energy Access for All**

Through the continued expectation of increased energy demand on a worldwide scale in the next few decades, the challenge of providing reliable, sustainable, affordable energy for everyone is growing. On the one side the world is transitioning to net zero carbon status, on the other side, the cost of new energy sources and new energy supply channels face the challenge of affordability. Balancing these in the future will require additional effort to ensure access to energy for all by 2030. With the added consideration of geopolitical developments we will have to reconsider energy strategies worldwide to achieve this.

## **F26 - Public Policy (Global & Local) – Climate Change, Transition Management, Supply Security and Energy Affordability**

The energy trilemma – the balance of energy sustainability, energy affordability, and energy security – is a challenge facing policy makers across the globe at both the national and local levels. The challenge is rooted in a reality that shifting any of these elements require difficult trade-offs in the others. This challenge is compounded by the fact that the impact of these decisions are not evenly distributed for stakeholders in a local community, nation, or planet, and the stakeholders have varying degrees of understanding of the issues. Providing leadership in these situations is difficult, and this session will explore case studies of what has worked or not worked and what skills and knowledge policy makers need to be effective in these situations.

## **F27 - Financing the Future Energy Supply**

Experts will discuss investment trends, risk management, and the role of public and private sectors in an evolving energy industry amidst a dynamic global transition. The forum will also address challenges in financing the energy transition, policy and market uncertainties, and adaptation to technological advancements. Join us to gain insights into innovative financing models, opportunities for growth, and how to ensure a stable and sustainable energy future.

## **F28 - ESG and Governance**

This forum will delve into the integration of Environmental, Social, and Governance (ESG) criteria into corporate governance frameworks. Discussions will cover the importance of ESG factors in driving sustainable business practices and long-term value creation. Attendees will explore best practices for ESG reporting, stakeholder engagement, and the role of governance in ensuring transparency and accountability. The forum will also highlight case studies demonstrating successful ESG implementation and its impact on corporate reputation and performance.

## **F29 - Scope 3 Emissions Measurement and Abatement**

This forum focuses on the challenges and solutions related to measuring and reducing Scope 3 emissions, which encompass all indirect emissions from a company's value chain. Discussions will include best practices for accurate measurement, innovative reduction strategies, and case studies of successful abatement initiatives. Participants will learn about tools and methodologies for tracking and managing Scope 3 emissions, as well as collaborative approaches to engage suppliers and other stakeholders in achieving significant reductions.

## **F30 - Human Capital – Attracting, Training and Retaining**

Our industry is working on strategies in harsh markets to attract the best talent, in competition with other key industries striving for the same goal. The main aim of this forum is to discuss the practices and solutions required to attract the best talent and ensure we develop and retain that talent in our industry. How we can make the oil, gas and energy sector more attractive for talent development? What are the tools required to provide the best training is a question we must regularly consider. Demonstrating that we are focused on talent management is essential in this competitive market to guarantee development of the next generation.

## **F31 - Stakeholder Engagement**

Stakeholder engagement is an expectation of responsible business conduct. While the energy industry provides critical benefits to society, it can have a significant social and environmental footprint and often risks causing or contributing to adverse impacts. Laws and regulations place obligations on industry and other stakeholders but going beyond these and meaningfully engaging with stakeholders to understand issues and opportunities makes good business sense and is a key to attaining and retaining a “social license to operate”. This forum will explore best practices and benefits of effective stakeholder engagement, including case studies in diverse jurisdictions.

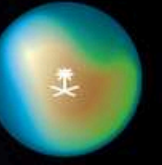




**25<sup>TH</sup>**  
**WPC ENERGY**  
**CONGRESS**



وزارة الطاقة  
MINISTRY OF ENERGY



For more information please email:  
[speaker@wpcenergy2026.org](mailto:speaker@wpcenergy2026.org)